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### **1987 Ship Production Symposium**

#### **Paper No. 5: Performance Teams: A Participative Approach to Productivity Improvement**

U.S. DEPARTMENT OF THE NAVY  
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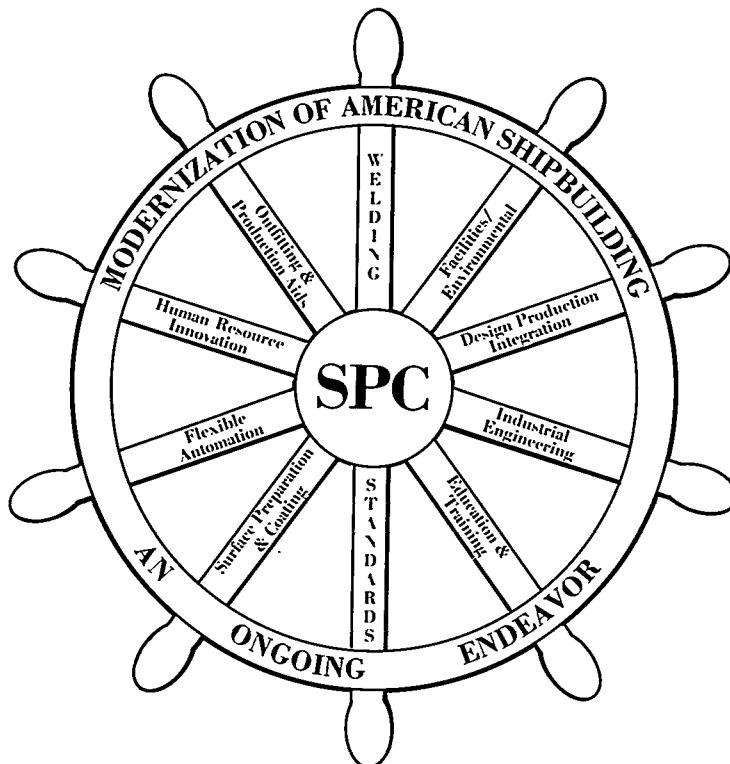
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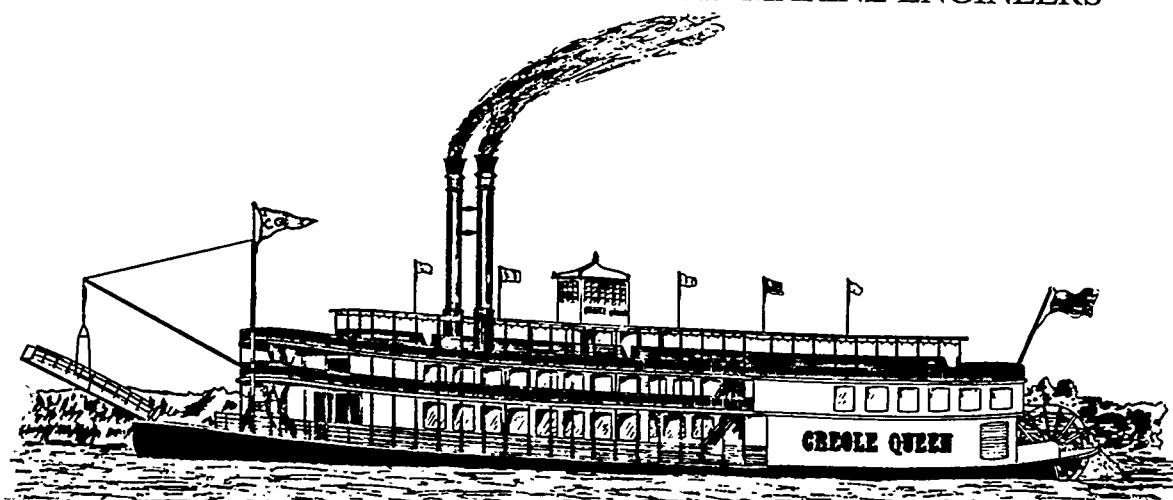
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# Performance Teams: A Participative Approach to Productivity Improvement

No. 5

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## ABSTRACT

The Performance Team program's purpose is to increase the productivity of the organization. The program's concepts are based on participative management, top-down involvement, objective setting, and analytical problem solving.

The Performance Team program has the potential to:

1. Increase the involvement of production personnel in the labor management process.
2. Improve the supervisor's analytical problem solving skills.
3. Identify and improve work methods and productivity.
4. Develop an improved rate structure.
5. Improve communication between functional departments.

This paper explores the development and implementation of the Performance Team program at National Steel and Shipbuilding Company. The application of the Performance Team concepts should be of interest to all production management interested in productivity improvement.

## BACKGROUND

Various factors led to the development of the Performance Team idea.

Production Experience. Assignment to the Transportation/Rigging and Electrical Departments, as Staff Engineer, led to a new and broadened perspective of production: The production supervisors' were able to take the information fed to them from various departments, and make it work. With whatever problems arose, it remained their task to finish the job; and they did.

Training. Assignment to the Electrical Department began to focus on the development of schedules which led the department to improved scheduling techniques. My experience was coupled with the experience of others, to develop scheduling training classes for all production foremen, as requested by management. These training classes presented techniques for both long and short term scheduling.

As a follow-on to the scheduling training classes, management requested the focus turn toward the labor management process. In trying to develop training material, various problems arose:

1. Budgets did not receive great credibility.
2. Workrates were not considered accurate.
3. Direct involvement in the labor management process was not perceived.

With the existence of such doubts, the task of developing training material became an examination of the labor management process.

Production Involvement. The problem appeared to center on production's disbelief of their involvement. Their disbelief created minimal concern for accurate cost collecting, thus effecting future budgets and estimates. Increasing their perceived involvement in the labor management process appeared to be the answer.

Training classes began, identifying production's role in the labor management process. Estimating, Master Planning, and Production were each identified as an integral part of the cycle; employing different focuses to their manpower development.

With the role of production identified, focus turned toward training the supervision in labor management skills. Production foreman needed new skills to be involved in the process.

Industrial Engineering Techniques. The training focused on methods improvement, rather than rate development. Finding a more efficient way to do the job was expected to provide more immediate results than rate development.

Work sampling was chosen as a technique which could provide the foremen with the ability to measure, monitor, and improve their productivity.

Performance Teams. The idea of Performance Teams developed as the labor management training progressed. Placing the responsibility on the foremen was going to require support from all levels of management, a common focus, and open communication. A program which incorporated these philosophies was required. Initial ideas for the program development grew from the works of D. Scott Sink, PhD. The Performance Team program included concepts of participative management, Management by Objective, and top-down involvement.

## PROGRAM STRUCTURE

Purpose. The purpose of the program is to decentralize the responsibility for cost improvements and increase the productivity of the organization, to more actively involve the supervisory levels of production in labor management practices.

Goals. The program established the following goals as the primary targets for all subsequent objectives and activities:

1. The establishment of proactive budgeting practices.
2. The identification and improvement of work methods.
3. The increased ability to measure performance.

4. The development, improvement and validation of a productivity rate structure.
5. The increased involvement of salaried supervision in the Labor Management process.

**Management Involvement.** Management involvement is critical to the program structure. Without management support, the strength of the program would be limited. The levels of management with full responsibility for the success of the Performance Teams were identified to include Senior Vice President Operations, Directors, Superintendents and the salaried supervisors on the Teams themselves.

The management components considered critical to the success of the program are defined as:

**Hard Work**—Each level of management needs to devote time and effort to document their own understanding of current rates and methods in order to responsibly provide leadership to the other management levels.

**Involvement/Participation**—Emphasis needs to be given to understanding and integrating the insights and recommendations of each management level.

**Innovation**—As abilities and motivations increase, suggestions for change and improvements are likely to evolve. New ideas and creative suggestions must be viewed with openness and realism. Where opportunities for improvement make sense, all management levels must be willing to take the risk necessary to innovate success.

**Directionality**—The structure, emphasis, and actual follow through of this program depends greatly on the direction and climate set by each management level participant. Directionality was particularly influenced by the program's objective setting process.

**Objective Setting**—To maintain a common focus, the Performance Team program is based on an objective setting process. This process is to allow each level of management to set objectives for their level of responsibility. A "planning form" was developed to formalize the objective setting process.

During the program start-up, the Performance Teams were to propose initial objectives to their Superintendent and Director. The Superintendent and Director were then responsible for identifying their own expectations for the Performance Team, and discussing these objectives with the Team. The Superintendent, Director, and Sr. Vice President Operations would then meet to review and accept the objectives. The review process was intended to maintain communication between management levels.

**Planning Form.** The purpose of the Performance Team Planning Form (see figure 1) is:

1. To prepare for discussing the primary target, objectives, and action steps that are relevant to the Performance Team Program.
2. To document the target, objectives and action steps agreed upon in the management review process.

Specific instructions given to the teams, to complete the forms included:

**Readiness Level**—Readiness assessment guidelines have been established to assess a Performance Team's readiness. Identify the team's level based on the two major components of readiness, ability and motivation.

**Short Term Objectives**—Indicate short term objectives that can be measured and reviewed at the end of a three month period.

**Action Steps**—Identify specifically what particular actions will be taken in order to reach the short term objectives.

MANAGEMENT LEVEL OR PERFORMANCE TEAM NAME,		DATE,	QUARTERLY FORM											
PERFORMANCE TEAM READINESS LEVEL, EXPLAIN,														
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COMMENTS														

**FIGURE 1**

**Participants.** Each Performance Team should consist of:

- a **Leader**—typically an Assistant Superintendent or General Foreman in the designated trade area.
- an **Assistant**—typically a foreman or staff person in the designated trade area
- Members**—the salaried supervisors in the designated trade area.

Leaders and assistants were chosen from various departments to participate in the program. Activities involved in pursuing the objectives of this program were considered to be a normal function of the supervisor's job.

#### **IMPLEMENTATION**

Certain factors were predicted to have possible effect on the implementation of the Performance Teams. Each of these issues were addressed up front:

**Management Support.** As the Performance Team program was developing, management support was continually sought. Clearly, the support of each level of management was critical to the success of the program. If the participants of the Performance Teams felt that management were not in support of the program, they would be less likely to give their cooperation to the program.

The Senior Vice President, Operations was extremely supportive of the program, and was willing to "champion" the efforts. The Directors and Superintendents were kept continually involved in the program development. They previewed all training material, prior to the Performance Teams' training sessions. These review sessions were important for more than the involvement; they provided a means for acclimating this level of management to the principles on which the Performance Teams were based.

Although there were some reservations toward the program, management support appeared to be sufficient for the success of the program.

**Union Support.** Since the Performance Teams would be involved in measuring the productivity of the work force, union cooperation was critical. To prevent any problems as the program began, union representatives were invited to a presentation. This presentation gave an overview of the Performance Teams, and explained the importance of the program. They were informed that the foremen would be measuring the productivity of the work force, but that this in no way reflected on the individual workers. Instead, it was a reflection of the foreman's supervisory abilities.

The union representatives were very responsive to the program, and understood that improving productivity was critical to the success of the company.

**Common Understanding of the Program Goals.** The goals to the program were clearly stated to all levels of management. Even more clearly understood than the goals was the underlying thought that productivity improvement was essential to the company's operations.

**Production Supervision's Problem Solving Abilities.** The training sessions were developed to improve production supervision's abilities. Work sampling was emphasized as a technique to be used for measuring and improving productivity. A 'questioning attitude' was stressed as an integral part of their daily activities.

**Awareness of Short and Long Term Results.** As the program began, there was a desire for overnight changes. It was essential to portray that the program could not provide such an impact. In the short run, observing productivity improvements should be considered significant. In the longer run, effecting future bids, and developing more accurate work rates were reasonable goals. It was unfeasible to expect the development of rates as a short term goal.

The importance of not rushing for results was accepted, although there was a continued desire for a more rapid approach.

## **TRAINING**

Performance Team training material was developed primarily to improve the participants' analytical and problem solving skills. The training material provided production supervisors with the tools to study their methods and measure productivity. This was to give production supervision the ability to:

1. Identify productive and non-productive time.
2. Reduce non-productive time.
3. Monitor performance.
4. Improve predictability of meeting schedule and manhour allowances.
5. Develop more meaningful historical data.

Many factors contributed to the development of the training material. The Methods Engineering Workshop for the Shipbuilding Industry, published by SP-8, provided a basis for development. The training

classes provided "the basics", with follow-on training as the Performance Teams continued to progress.

The initial training was broken into five sessions. All Performance Team leaders and assistants were required to attend the training sessions. The following is an outline of the sessions:

### **Performance Team Objectives/Operations**

- Performance Team Organizational Structure
- Objective Setting
- Performance Team Operations
- Start-up Sequence

### **Overview**

- Need for Work Measurement
- Need for Methods Improvement
- General Terms and Definitions

### **Data Collection**

- Methods Improvements
- Process Charts
- work sampling

### **Data Analysis**

- Work Content Identification
- Self Logging
- Work Rate Development

### **Data Utilization**

- Classification
- Application
- Performance Measurement.

As the sessions began, it appeared too much information was being presented at one time. The Data Utilization session was withheld from the training until a later date. The training continued to focus on work sampling and methods improvement. Observing the training with hind-sight, some of the training material and presentation of the material might be changed for a future application.

## **RESULTS**

All elements appeared to have been set in place for the progress of the Performance Team Program. Each team received specific task assignments to begin their investigations. Their tasks included.

1. Identify current budgets.
2. Discuss rates being used with Planning and Estimating.
3. Conduct a work sampling to identify current productivity.
4. Identify areas for improvement.

As time passed, it became obvious that each team would progress at a different pace, and in various directions. These factors had an effect on the Performance Teams' performance:

**Varying Workload.** During the time period in which the Performance Teams began their efforts, the production workload was diminishing. With an atypical workload, productivity could not be effectively measured.

**Management Support.** Active participation by management was not perceived by all Performance Team participants. A ques-

tioning attitude toward the future of the Performance Team program began to develop.

**Team Guidance.** The factor having the most significant impact on the teams' results was team guidance. The Performance Team program had one 'facilitator'. The direction, continued training, and program support simply could not be fully provided by one person.

The following are examples of three Performance Teams' results:

**Steel Erection.** Although this team was affected early by the declining workload, they were able to complete a work sampling and identify areas for improvement. The participants of this team expect to continue this type of problem solving at the onset of the next construction cycle.

**Pipe On-Block.** This team was also able to complete a work sampling and identify areas for improvement. They also began to analyze their productivity from various perspectives; time of day, day of the week. The information gathered by this team was used to affect their future bidding factors.

**Electrical On-Board.** This team was able to progress further than the other teams. Their success was attributable to:

1. An enthusiastic leader.
2. A positive departmental attitude.
3. Additional direction from the Performance Team 'facilitator'.

This team began their activities by conducting a work sampling. Although the foremen had previously recognized some of their inefficiencies, the work sampling made the information more tangible. Method changes were made on the basis of the work sampling findings.

The team continued their activities into the area of self-logging. Electricians were approached and asked to participate in the self-loggings; their participation was optional. The results from the self-loggings were helpful in identifying problem areas, but more direction would be required to have gained more accurate time-keeping through the use of this technique.

The team identified 'hook-up' as an area for significant improvement in method and productivity improvements. One of the team members had a background of industrial engineering training, and was able to conduct time studies. The results of these studies provided information for the team members to identify method improvements. The information was also used to develop input for budgeting and estimating.

The team had begun their activities by identifying their current workrates being utilized by the Estimating and Master Planning Departments. As the team developed information to effect these rates, they began to discuss this information with the other departments. They had been able to develop information which significantly affected their departmental budgets and estimates.

Another output from the team was the development of an evaluation form. This evaluation form was used to open lines of communication between the workers and their supervisors.

The feedback loop and increased involvement has begun. The department is certain they will continue their involvement in the labor management process.

**Conclusion.** Despite problems, the Performance Team program experienced its share of success. The Performance Team program was able to:

1. Increase production supervision's involvement in the Labor Management process.
2. Improve the supervisor's analytical problem solving skills.
3. Identify and improve work methods and productivity.
4. Improve communication between functional departments.

The program proved its concepts were a feasible approach, and variations would be required for more significant progress.

### **LESSONS LEARNED**

**Production Involvement.** Performance Teams can effectively involve production supervision in the labor management process. Production supervisors are willing and able to be more involved.

**Training.** Specific emphasis should be placed on work sampling. The production supervisors were able to grasp this technique, using it to measure productivity, improve methods, and develop workrates.

**Guidelines** for conducting a work sampling should be clearly defined. As the Performance Teams progressed, the guidelines issued by Rear Admiral Horne were discussed and utilized by some of the teams. Having all teams progressing on similar guidelines would provide a basis for comparison.

Training material should be presented in segments. As the teams progress, more information should continue to be presented.

**Structure.** More emphasis needs to be placed on monitoring team performance, follow through is essential. Continued involvement by management is vital.

**Industrial Engineering Support.** The program requires continued training and guidance, outside the classroom sessions. The addition of more industrial engineers as trainers/facilitators/assistants would provide a significant improvement to the program efforts.

**Implementation.** A feasible timeline should be developed. Abbreviated training and start-up time will not foster the program's growth.

### **FUTURE IMPLEMENTATION**

Participative management leads to improved productivity, as the Performance Team program indicates. The programs results validate the process of developing analytical problem solving skills to increase involvement in the labor management process.

The benefits of the Performance Team program are universal to all manufacturing environments. With industrial engineering support and top-down involvement, the program should lead toward the desired productivity improvements.

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